

# **CBT 442**

## *Stroke*

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## **CONTENTS**

### **RECERTIFICATION**

Foreword .....	442.1
Goals & Objectives .....	442.1
Medical Incident Report Facts .....	442.2
Definitions .....	442.5
Anatomy .....	442.7
Etiology .....	442.9
Risk Factors .....	442.10
The EMT As A Health Advocate .....	442.11
A Systematic Approach To Patient Care (SOAP) .....	442.11
Short Radio Report .....	442.15
Case Studies .....	442.16
Resources and References .....	442.19
Skills Checklist .....	442.20

## RECERTIFICATION

### FOREWORD

In the past the medical condition of stroke was considered a “stroke of fate” or “stroke of God’s hands.” It was believed that it was a condition that was neither preventable nor treatable. The victim was now unable to do many of the activities we take for granted. Driving, walking, eating, going to the bathroom, and playing with grandchildren all would require assistance, if they could be done at all. To the family and friends went the challenges of caring for the patient.

The outdated fatalistic notion of stroke has led victims to be apathetic about their condition. The average length of time to seek help after the onset of symptoms is 13 hours. Recent advancements, however, in the acute care of stroke patients is giving hope of partial, and occasionally, complete restoration of function.

As pre-hospital care providers, we represent a vital link between the patient and new modes of therapy which could greatly improve the way the victim will interact with their world. There is an axiom in cardiology that “time is heart muscle.” When it comes to strokes, “time is brain cells.”

### GOALS & OBJECTIVES

#### Goals

- Early recognition of stroke by prompt patient assessment by use of the subjective and objective information, including the Cincinnati Stroke Scale.
- Meaningful intervention with an approved BLS care plan or ALS request from scene.
- Safe, rapid transport to an appropriate medical facility.

#### Objectives

- Psychomotor

Given a partner, relevant equipment and a patient with stroke symptoms, the EMT will demonstrate recognition and treatment as specifically identified in the King County CBT and Patient Care Guidelines.

- Cognitive

After study of the CBT stroke module the EMT will verify cognitive learning by successful completion of a written test by achieving a minimum score of 70%.

## MEDICAL INCIDENT REPORT FACTS

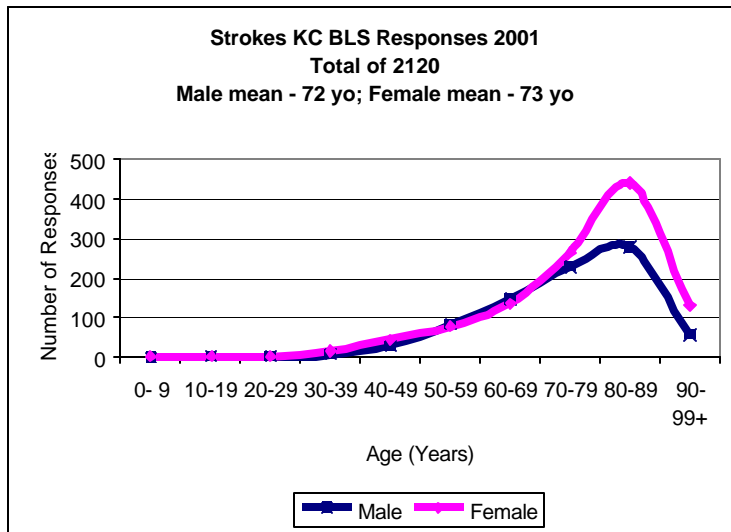


Figure 442.1  
Age and gender for patients with Stroke seen by King County BLS providers in 2001. Equal numbers of men and women were seen. Stroke is an illness of older persons.

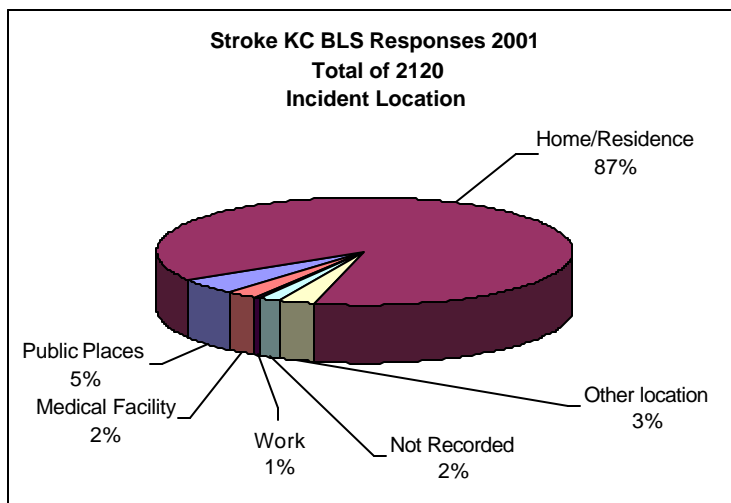


Figure 442.2  
Stroke patients were seen in their places of residence.

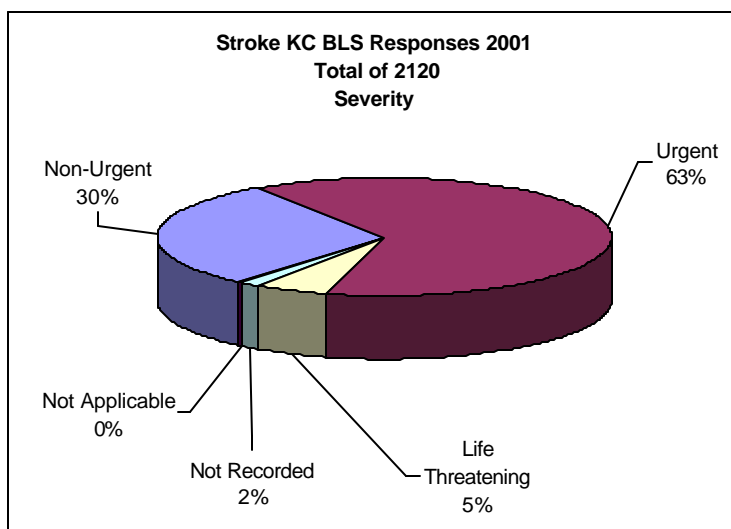


Figure 442.3  
Stroke patients were felt to have an urgent condition most of the time. A few were felt to have a life-threatening state.

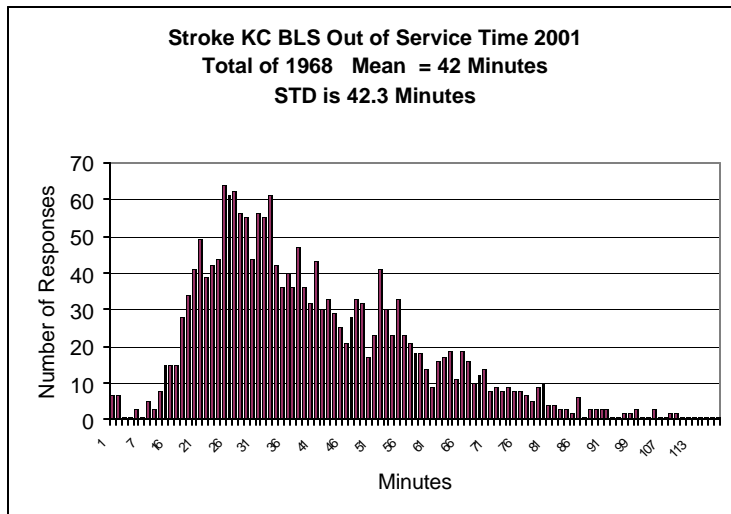


Figure 442.4  
 Out of service times were relatively long, probably due to BLS transport. On scene times, which were not reported should be less than 25 minutes. Both longer and shorter times should be reviewed.

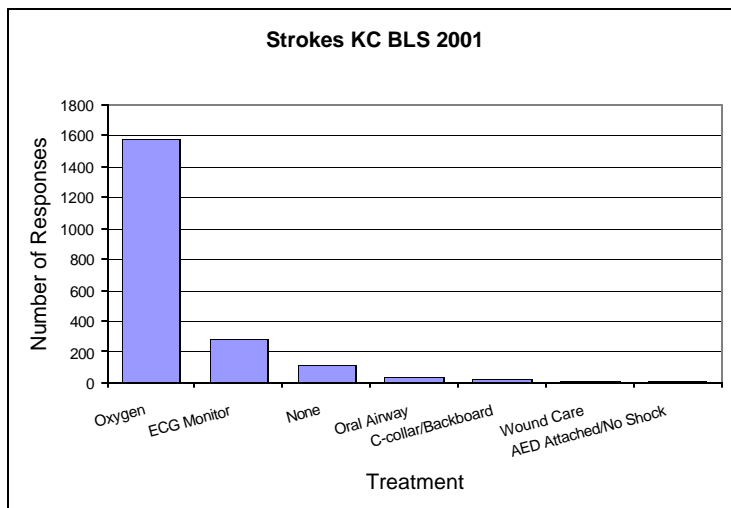


Figure 442.5  
 BLS treatment for stroke was oxygen therapy in the vast majority.

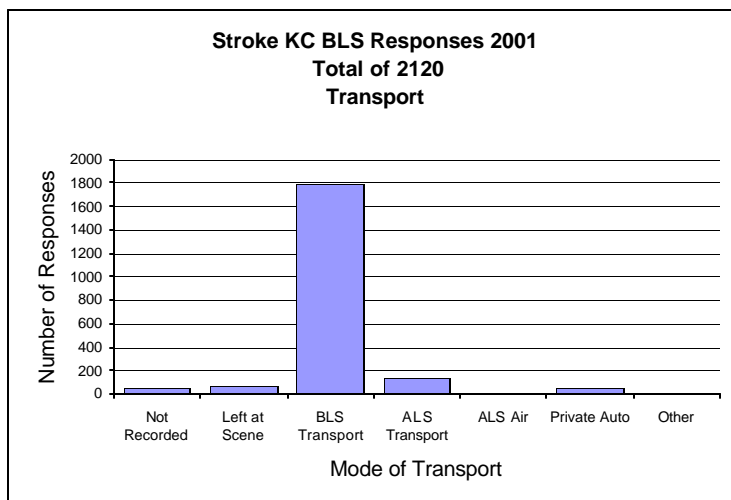


Figure 442.6  
 BLS transport of stroke patients occurred 85 % of the time, which is within the limits predicted by the Patient Care Guidelines. Review of stroke cases left at scene or receiving ALS transport is recommended.

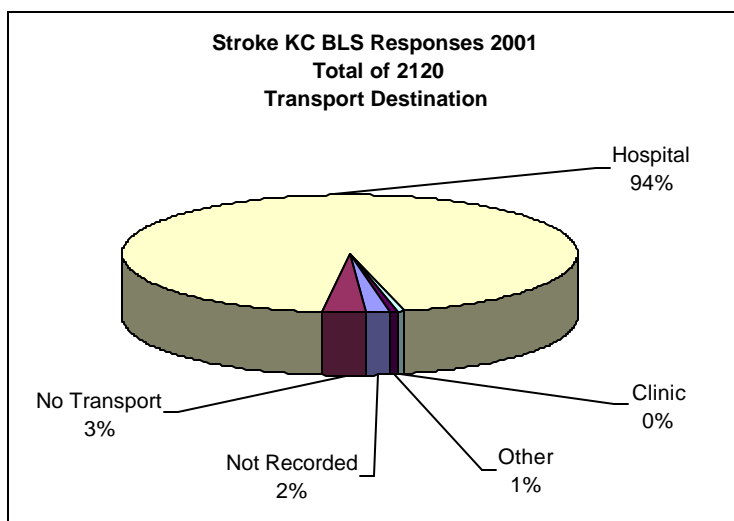
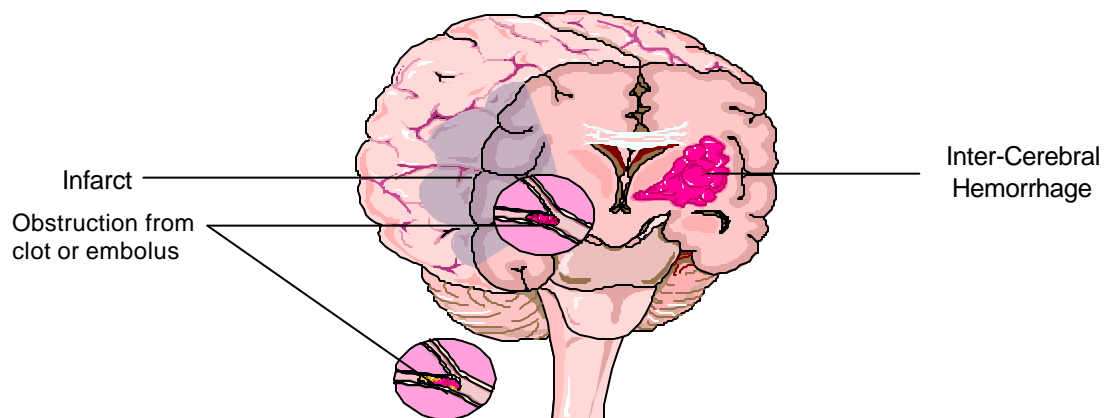


Figure 442.7  
Stroke cases were taken to hospital emergency room, consistent with Patient Care Guidelines.

## DEFINITIONS

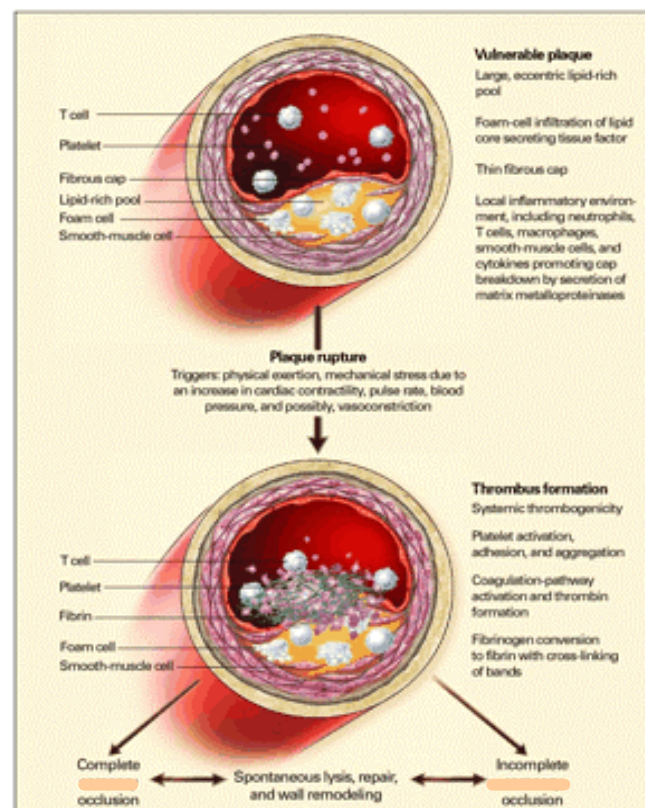
<b>CVA</b>	<b>Cerebrovascular Accident.</b> Synonymous with stroke or brain attack.
<b>Embolism</b>	An embolus, a traveling blood clot, often from the carotid artery in the neck or from the heart will cause a stroke when it lodges in an artery which supplies blood to the brain. The clot will travel until it becomes lodged in one of the small arteries of the brain, blocking blood flow and causing a stroke.
<b>Hemiparesis</b>	One-sided weakness.
<b>Hemiplegia</b>	One-sided paralysis.
<b>Hemorrhagic Stroke</b>	Hemorrhagic stroke results from the rupture of an artery that causes bleeding on the surface or within the brain. This event is most likely another manifestation of an abnormality within the vascular wall. It is more likely to occur in patients with hypertension, with aneurysmal malformations of the cerebral vessels (berry aneurysms), or with congenital malformations of the cerebral vasculature.
<b>Hyperlipidemia</b>	Elevated blood fat levels, particularly LDL cholesterol.
<b>Infarct</b>	A localized area of cell death due to a lack of oxygenated blood.
<b>Ischemia</b>	The deficiency of oxygenated blood in a body part as a result of a constriction or blockage of the blood vessel.



<b>Stroke</b>	A cardiovascular disease that affects the blood vessels supplying blood to the brain. A stroke occurs when a blood vessel bringing oxygen and nutrients to the brain bursts or is clogged by a blood clot or embolus. Because of this rupture, or blockage, part of the brain doesn't get the blood flow it needs. Deprived of oxygen, brain cells in the affected area of the brain can't function and die within minutes. When brain cells can't function, the part of the body they control can't function either. The devastating effects of stroke are often permanent because dead brain cells aren't replaced. – American Heart Association, <i>Heart Matters</i> , Vol. 6 No. 4 Summer 2002
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## Thrombus

Plaque deposits form on the inner wall of arteries. This narrowing may progress slowly over years, particularly in those patients who smoke or have high cholesterol or high blood pressure. Sudden thrombotic occlusion may occur in atherosclerotic vessels when the cholesterol rich plaque ruptures and platelets adhere to the ulcerated surface. This event triggers a number of vascular responses and triggers the blood clotting mechanisms. A blood clot (thrombus) forms in the area of plaque and ruptures with a sudden occlusion of the vessel. This occlusion stops blood flow and in the case of the brain, produces a sudden onset of neurological deficits that relate to the area of the brain deprived of blood – a **brain attack**. This pathophysiology is the same as in a heart attack and has led to the same diagnostic and therapeutic approaches as seen in rapid diagnosis, early attempts to revascularize the ischemic area and preventative measures which control hypertension, hyperlipidemia, and thrombosis, although the results have not been as promising as compared to revascularization in heart attack.



### Pathophysiologic Events Culminating in the Clinical Syndrome of Ischemic Stroke.

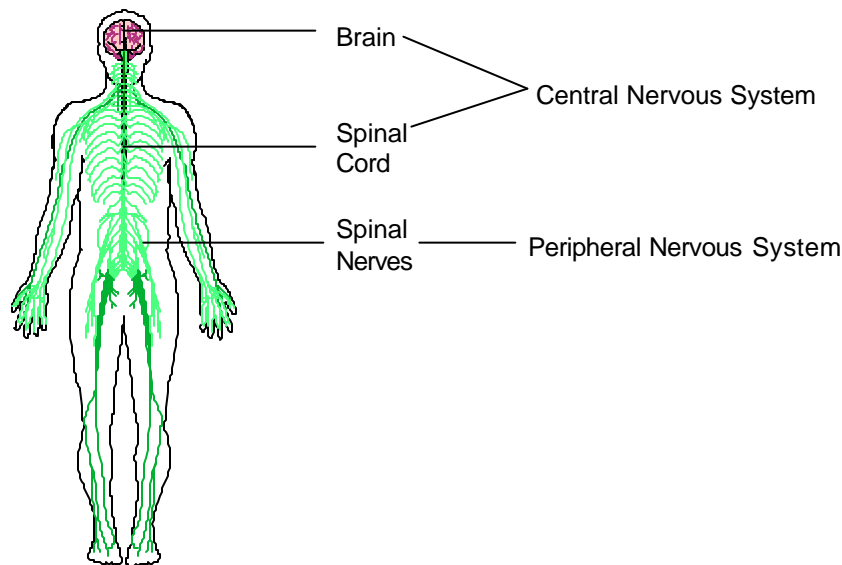
Numerous physiologic triggers probably initiate the rupture of a vulnerable plaque. Rupture leads to the activation, adhesion, and aggregation of platelets and the activation of the clotting cascade, resulting in the formation of an occlusive thrombus. Arterial occlusion causes symptoms related to the region of the brain supplied by the artery.

The New England Journal of Medicine, January 13, 2000

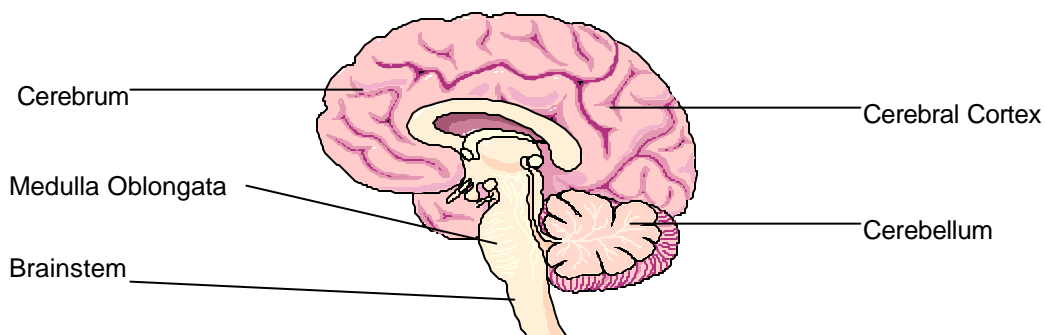


## ANATOMY

The brain, along with the spinal cord, comprises what is known as the central nervous system. The **central nervous system** is responsible for controlling both the voluntary and involuntary activities of the human body. The brain is considered the most highly specialized organ in the body. The average adult human brain weighs approximately three pounds. It is richly supplied with blood vessels and demands an adequate and constant supply of oxygen to function and remain alive.



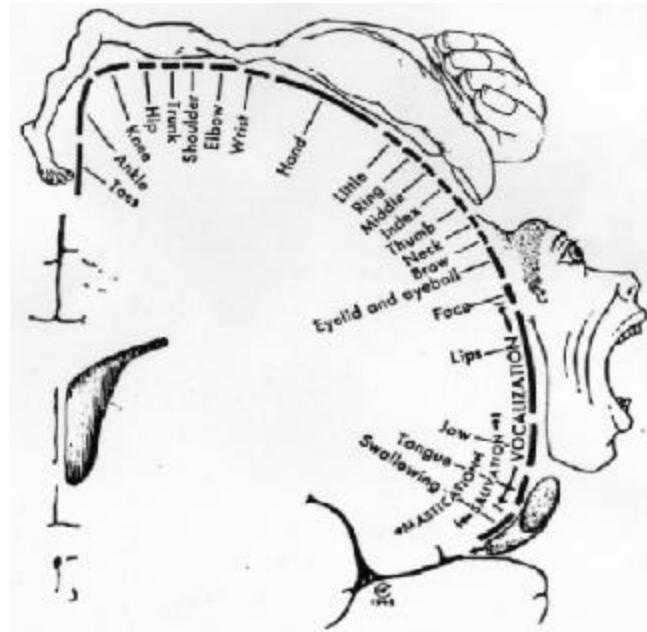
It is useful to remember that the complexity of function in the brain roughly correlates to its location. Low order functions are located deep and low in the brain while higher order functions reside in the upper and outer regions of the brain. Specifically, the brain consists of several regions. These include the **cerebrum**, **cerebellum** and **medulla oblongata**.



The **cerebrum** is the largest and occupies most of the cranial cavity. It is here that conscious thought, memory, personality, speech and motor control, visual, and tactile (touch) impulses are created and controlled. The dominant hemisphere usually contains the speech area. The dominant hemisphere is opposite to the handedness of the patient. For example, in a right-handed patient, the left cerebral cortex is dominant.

The **cerebellum** is located below and behind the cerebrum in the base of the skull. Its primary function is to regulate and coordinate muscle activity and balance through impulses it receives from the eyes, the ears and the peripheral joints and muscles.

The **medulla oblongata** is part of the brain stem and controls basic functions vital to our survival, such as: digestion, heart function, respiration, glandular secretions and the autonomic nervous system. This brain stem section is connected to the spinal cord as it passes out of the skull through a hole called the foramen magnum. Increased intracranial pressure may force the lower brain structures into the foramen magnum and produce herniation with evidence of brain stem dysfunction.



### ***The Homunculus***

As stated above, the cerebrum is where motor function and tactile stimulation are managed. The more obvious signs and symptoms of stroke are a result of infarct of the cerebrum. The homunculus demonstrates the volume and location of the brain tissue dedicated to motor (muscle) control and sensation in various parts of the body. The exaggerated features of hands, for example, illustrate just how much of the cerebrum is dedicated to movement and sensation of the hands. The dismembered homunculus on the right illustrates the approximate location of these control areas on the brain. This increase in brain tissue that relates to speech, face, and hand function explains why these areas are frequently found to be abnormal in patients with strokes.

## ETIOLOGY (UNDERLYING CAUSE)

There are two useful ways of categorizing strokes; one looking forward in time (useful for BLS providers) and one looking back in time (essential for the medical community). In the first case we are concerned with how our patient will evolve in the near future. Will the stroke quickly resolve (as in the TIA), will the effects of the stroke stay the same (typical of embolic and thrombotic strokes), or will the stroke get worse (commonly seen in hemorrhagic strokes). In the second case we are concerned with etiology.

There are two main underlying causes of stroke:

### **Ischemic Stroke**

Ischemic strokes are the most common types of stroke representing roughly 83% of all cases. These strokes result from a clot which either developed at the site of the blockage (thrombus) or floated to the site to form a blockage from a different part of the body (embolus). If the initial onset of symptoms was not devastating, a vast majority of these patients generally survive but with limited prospects of regaining function unless given clot-dissolving drug therapy within **three hours**.

### **Hemorrhagic Stroke**

Hemorrhagic strokes account for 17% of stroke cases. These strokes result from either a blood vessel rupturing on the surface of the brain (subarachnoid hemorrhage) or a rupturing from within the brain (inter-cerebral hemorrhage). The subarachnoid hemorrhage accounts for 7% of all cases of stroke and the inter-cerebral hemorrhage accounts for 10%. The prognosis of hemorrhagic stroke patients is somewhat different than those of the ischemic stroke patients. Approximately 50% of patients suffering from an inter-cerebral hemorrhage will die. The prognosis of the surviving 50% is fairly good. When a blood vessel bursts, it places pressure on the brain resulting in ischemia. With the relief of pressure, the brain will occasionally resume some or all of its function.

## RISK FACTORS

The American Heart Association has identified these conditions as the main contributing factors that increase the risk of stroke.

<b>High blood pressure</b>	HTN (hypertension) is the most important factor in stroke. Many believe the treatment of hypertension is responsible for the decline in the stroke-related deaths over the past several years.
<b>Age</b>	The chance of stroke more than doubles for each decade of life past the age of 55. While stroke is common in the elderly, substantial numbers of people under 65 also have strokes. The age of stroke victims is considerably older than the average patient seen by BLS providers.
<b>Gender</b>	The incidence of stroke is about 20% higher in men than in women. This observation is not confirmed by King County MIRF data, which shows the male-female ratio to be 43% to 54% (with 3% missing data).
<b>Heredity (family history)</b>	The probability of stroke is much higher in families with history of stroke.
<b>Prior Stroke</b>	Previous events increase the risk of another.
<b>Smoking</b>	The damage of cigarette smoke to the cardiovascular system increases the risk of stroke just as it increases the risk for coronary artery disease.
<b>Diabetes</b>	Diabetes is strongly connected to HTN and high cholesterol. Vascular injury associated with diabetes increases stroke risk.
<b>Carotid artery disease</b>	The carotid arteries in your neck supply blood to your brain. A diseased carotid artery may become blocked by a blood clot causing a stroke or may be the source of an embolus to the brain.
<b>Heart disease</b>	A diseased heart increases the risk of stroke. People with heart disease have more than two times the risk of stroke. Abnormal heart rhythms such as atrial fibrillation (the disorganized depolarization and beating of the heart's upper chambers) increase the risk of stroke due to the chance of blood clots being formed, dislodged and traveling to the brain obstructing blood flow.
<b>Transient Ischemic Attacks</b>	(TIAs) are brief (less than 24 hour) obstructions in blood flow in the brain, which produce stroke-like symptoms but no lasting damage. They are strong predictors of a stroke. A person who has suffered a TIA is 10 times more likely to have a stroke, and develop permanent neurologic deficit.

Conditions which may be confused with a stroke:

- ~~EEG~~ Hypoglycemia
- ~~EEG~~ Drug and/or alcohol intoxication
- ~~EEG~~ Postictal state following a seizure
- ~~EEG~~ Altered consciousness from head trauma

## THE EMT AS A HEALTH ADVOCATE

In King County there are nearly 4,000 EMS field providers. These personnel can provide a large and vital force to improve the health of King County citizens.

- EMTs should learn stroke risk factors.

Stroke risk factors include:

- Hypertension
- Atrial fibrillation
- Hyperlipidemia
- Cigarette smoking

- EMTs should take responsibility for correcting their own risk factors.
- EMTs should educate themselves, their colleagues, their families and the community about risk factors and their modification.

## A SYSTEMATIC APPROACH TO PATIENT CARE

(S) SUBJECTIVE	History
<p>CHIEF COMPLAINT: THE INFORMATION FROM DISPATCH SHOWS THAT PATIENTS FREQUENTLY REPORT LOSS OF MOTOR FUNCTION, LOSS OF SPEECH OR LOSS OF CONSCIOUSNESS AS THE FIRST OBSERVED CHANGE WITH STROKE.</p>	
<p><b>S</b>ymptoms relate to the area of the brain that is ischemic. The five most common symptoms of a stroke are:</p> <ul style="list-style-type: none"><li>• Sudden numbness or weakness of face, arm or leg, especially on one side of the body</li><li>• Sudden confusion, trouble speaking or understanding</li><li>• Sudden trouble seeing in one or both eyes</li><li>• Sudden trouble walking, dizziness, loss of balance or coordination</li><li>• Sudden severe headache with unknown cause</li></ul>	
<p><b>A</b>llergies – Generally not important in etiology but may influence drug selection</p>	
<p><b>M</b>edications – Indicate past history, may be a cause of CNS symptoms</p>	
<p><b>P</b>ast medical history – Indicates stroke risk factors</p>	
<p><b>L</b>ast oral intake – Not important in etiology but may be important in treatment</p>	
<p><b>E</b>vents prior to injury/illness – Probably not important in etiology but may suggest alternate cause of symptoms. <u>While evaluating the patient, it is imperative to determine the time of symptom onset.</u></p>	
<p>Family, friends or those caring for the patient will often need to provide information about the patient's medical history as well as the current event, particularly if the patient has aphasia or unconsciousness.</p>	

(O) OBJECTIVE	Physical Exam
<p><b>Vital signs</b> – Include blood pressure, pulse, respiration rates and pupillary response. Repeat observations several times and record.</p> <p><b>Evaluate and record the Cincinnati Stroke Scale.</b></p> <p>The Cincinnati Prehospital Stroke Scale is used in the field to detect stroke. <u>An abnormal finding strongly indicates a stroke:</u></p> <p><b>Facial Droop</b> – The patient shows teeth or smiles</p> <ul style="list-style-type: none"> <li>• Normal: Both sides of the face move equally.</li> <li>• Abnormal: One side of the face does not move as well as the other.</li> </ul> <p><b>Arm Drift</b> – The patient closes his/her eyes and extends both arms straight out for 10 seconds</p> <ul style="list-style-type: none"> <li>• Normal: Both arms move the same, or both arms do not move at all.</li> <li>• Abnormal: One arm either does not move, or one arm drifts down compared to the other.</li> </ul> <p><b>Speech</b> – The patient repeats "The sky is blue in Seattle"</p> <ul style="list-style-type: none"> <li>• Normal: The patient says correct words with no slurring of words</li> <li>• Abnormal: The patient slurs words, says the wrong words, or is unable to speak</li> </ul>	

## Los Angeles Prehospital Stroke Screen (LAPSS)

Screening Criteria	Yes	No
1. Age over 45 years	___	___
2. No prior history of seizure disorder	___	___
3. New onset of neurologic symptoms in last 24 hours	___	___
4. Patient was ambulatory at baseline (prior to event)	___	___
5. Blood glucose between 60 and 400	___	___

### Exam: look for obvious assymetry

	Normal	Right	Left
Facial smile / grimace:	___	___ Droop	___ Droop
Grip:	___	___ Weak Grip ___ No Grip	___ Weak Grip ___ No Grip
Arm weakness:	___	___ Drifts Down ___ Falls Rapidly	___ Drifts Down ___ Falls Rapidly

	Yes	No
6. Based on exam, patient has only unilateral weakness:	___	___

### If Yes (or unknown) to all items above LAPSS screening criteria met:

If LAPSS criteria for stroke met, call receiving hospital with "code stroke", if not then return to the appropriate treatment protocol. (Note: the patient may still be experiencing a stroke if even if LAPSS criteria are not met.)

(A) ASSESSMENT	Impression
<ul style="list-style-type: none"> <li>• A summary of the EMT's impression about the patient's condition.</li> <li>• The severity of the condition.</li> <li>• Identification of ALS and BLS criteria.</li> </ul>	
ALS Indicators	BLS Indicators
<ul style="list-style-type: none"> <li>• Unconsciousness</li> <li>• Decreased level of consciousness</li> <li>• Severe hypertension</li> <li>• Seizures</li> <li>• Severe headache</li> <li>• Patient unable to protect airway</li> <li>• Unstable vital signs (BP, HR, resp)</li> <li>• Progression/worsening of symptoms</li> </ul>	<ul style="list-style-type: none"> <li>• Vital signs and condition stable</li> <li>• CVA history</li> <li>• CVA signs</li> <li>• Airway secure</li> </ul>
(P) PLAN	Treatment
<b>BLS CARE</b>	
<ul style="list-style-type: none"> <li>• <b>Call paramedics if indicated.</b></li> <li>• Place patient in position of comfort</li> <li>• Open and manage airway.</li> <li>• Deliver high flow oxygen, ventilatory assistance as necessary.</li> <li>• Maintain normal body temperature.</li> <li>• Protect paralyzed limbs.</li> <li>• Monitor vital signs.</li> </ul> <p><b><u>Early notification of receiving facility is critical in assuring patient receives prompt care</u></b></p> <div style="border: 1px solid black; padding: 5px;"> <p><b>Revascularization by fibrinolysis (clot dissolving medicine) must be initiated within three (3) hours of a stroke. If a stroke is of recent onset (less than three (3) hours) very short scene times and transport times are critical.</b></p> </div>	
<b>TRANSPORT DECISIONS</b>	
<p>Standard criteria for:</p> <ul style="list-style-type: none"> <li>• <b>Leave At Scene</b>  <div style="margin-left: 20px;">Except: All stroke patients require transport</div> </li> <li>• <b>Privately Owned Vehicle (POV)</b></li> <li>• <b>BLS Aid Car/Private Ambulance</b></li> <li>• <b>ALS</b></li> </ul>	



## DESTINATION DECISIONS

Standard criteria for:

- **Self-Care**

Except: No stroke patients are eligible

- **Clinic or Doctor's Office**

Except: No stroke patients are eligible

- **Hospital Emergency Room**

Except: All stroke patients

## SHORT RADIO REPORT

### IDENTIFY

- Unit/agency
- Number of patients
- Level of consciousness, age, gender
- Chief complaint
- Vital signs (respirations, pulse, blood pressure, skin color temp)
- Treatment provided

### EXAMPLE

- Aid 11 Medic 23
- Conscious 75-year old female patient who is
- Complaining of inability to speak and walk. She has a past history of hypertension and diabetes.
- Respirations 20, pulse 110, BP 170/90, skin pale and dry, Awake alert follows commands but can not speak clearly or grip with right hand. Ability to swallow intact.
- 15 Liters via non-rebreather

## CASE STUDIES

### CASE 1

#### Subjective

46 y/o black male transit driver found unresponsive at 0700 by family. Last seen at 2000 when he went to bed. Past history of hypertension, but family does not know if he took his medication or what his blood pressure is normally. Recently complained of thirst and has lost 10 pounds. Unknown family history. He had been at work the preceding day.

#### Objective

Vital signs – BP 170/100, HR 85 and regular, Respirations 18 and irregular

General – Large Black Male, (approx 280 pounds) who appears sleepy, arouses slightly to stimulation, does not respond to commands or questions. Snoring respirations.

CNS – Snoring respiration, semi responsive, right arm flaccid, left arm has some tone, pupils equal and reactive, legs have tone.

Heart and lungs – unremarkable

#### Assessment

Most likely problem is?

1. Stroke
2. Hypoglycemia
3. Hyperglycemia
4. Subarachnoid hemorrhage
5. Drug or alcohol Overdose

ALS Indicators are present?

BLS Indicators are present?

#### Plan

The BLS care should include:

1. ALS call from scene
2. Prompt BLS transport
3. High flow oxygen
4. Recovery position
5. Oral-pharyngeal suctioning
6. Assist with oral glucose
7. Assist with oral nitroglycerin
8. ECG monitoring
9. Immobilization on backboard
10. Repeated monitoring of vital signs
11. Repeated monitoring of CNS status

## CASE 2

### Subjective

A 75 y/o WM is seen because his family is concerned about his increasing headache, trouble with speaking and lethargy over the last 5 days. He has a past history of an aortic valve replacement. He has been active and without other symptoms. His medications include warfarin, aspirin, and simvastatin.

### Objective

Vital signs: BP 170/100, HR 90 and regular, Respirations normal

General: An elderly man is found sitting in a chair, he looks at you, but does not respond to commands or questions. Bruises are noted on his hands.

CNS: He makes guttural sounds, but does not speak. Symmetrical movement in all extremities. Swallows without difficulty.

Chest: Midline surgical scar.

Lungs: Clear

Heart: Normal sinus rhythm

Abdomen: Negative

### Assessment

The most likely problem is?

1. Stroke
2. Hypoglycemia
3. Hyperglycemia
4. Subarachnoid hemorrhage
5. Drug or alcohol overdose

ALS Indicators are present?

BLS Indicators are present?

### Plan

The BLS care should include:

1. ALS call from scene
2. Prompt BLS transport
3. High flow oxygen
4. Recovery position
5. Oral-pharyngeal suctioning
6. Assist with oral glucose
7. Assist with oral nitroglycerin
8. ECG monitoring
9. Immobilization on backboard
10. Repeated monitoring of vital signs
11. Repeated monitoring of CNS status

### CASE 3

#### Subjective

911 is called by the family of an 85 y/o WF because she cannot walk or speak. On arrival the family takes the EMT's to the bedroom where an older female is lying in bed with her head tipped to the left. She watches the EMT enter the room, but does not speak. Her family reports that she was found on the floor about 0700, could not walk and was placed back in bed. Patient last seen 2200 hrs last PM. She has been otherwise healthy, takes vitamins, medicine for osteoporosis and blood pressure.

#### Objective

Vital signs: BP 160/85, HR 115, irregular, Respirations 18 and regular.

General: elderly female found in bed, eyes open and appears alert.

CNS: Decreased grip right hand

Lungs: clear

Heart: Rhythm irregular

Abdomen: negative

#### Assessment

This patient mostly likely has:

1. Subdural hematoma
2. Intracranial hemorrhagic stroke
3. Skull fracture
4. Hypoglycemia
5. Hyperglycemia
6. Ischemic stroke
7. Atrial fibrillation

Are there ALS Indicators?

Are there BLS indicators?

#### Plan

The BLS care should include:

1. ALS call from scene
2. Prompt BLS transport
3. High flow oxygen
4. Recovery position
5. Oral-pharyngeal suctioning
6. Assist with oral glucose
7. Assist with oral nitroglycerin
8. ECG monitoring
9. Immobilization on backboard
10. Repeated monitoring of vital signs
11. Repeated monitoring of CNS status

## RESOURCES AND REFERENCES

King County EMS Patient Care Guidelines

Hafen B, Karen K, and Mistovich J. Prehospital Emergency Care 5<sup>th</sup> Edition.

King County EMS Patient Care Guidelines

Bledsoe B, Porter R, and B Shade. *Paramedic Emergency Care 3<sup>rd</sup> Edition*. Prentice Hall Inc. Upper Saddle River, NJ 07458

Hafen B, Karren, and Mistovich J. *Prehospital Emergency Care 5<sup>th</sup> Edition*. Prentice Hall Inc. Upper Saddle NJ, 07458

Tintinalli J, Ruiz E, and Krome R. *Emergency Medicine: A Comprehensive Study Guide 4<sup>th</sup> Edition*. McGraw-Hill publishers.

American Heart Association. <http://www.amhrt.org>

Cincinnati Prehospital Stroke Scale Study. *Annals of Emergency Medicine*. April 1999

American Heart Association, *Heart Matters*, Vol. 6 No. 4. Summer 2002

### Web sites:

American Stroke Association (a division of A H A): <http://www.americanheart.org/Stroke/index.html>

National Stroke Association: <http://www.stroke.org>

National Institute of Neurological Disorders and Stroke: <http://www.ninds.nih.gov/>

<http://www.sierragates.com/links.htm>

<http://www.biausa.org/>

<http://www.cmsa.org/>

<http://www.vh.org/Patients/IHB/Neuro/BrainInjury/00TableOfContents.html>

<http://www.med.harvard.edu/AANLIB/home.html>

<http://curry.edschool.virginia.edu/go/cise/ose/categories/tbi.html>

<http://www.biact.org/links/tbilinks.html>

<http://www.health-helper.com/>

<http://curry.edschool.virginia.edu/go/cise/ose/categories/tbi.html>

<http://www.os.dhhs.gov/>

<http://www.medical-library.org/>

[http://www.noravc.com/brain\\_tumor.htm](http://www.noravc.com/brain_tumor.htm)

<http://www.parasolemt.com.au/afa/afa21.html>

<http://www.brain.com/about/content.cfm?ID=51>

<http://www.stroke.org/>

<http://www.ninds.nih.gov/>

<http://www.strokerecovery.org/>

<http://www.stroke-site.org/>

<http://www.aan.com/>

<http://www.ama-assn.org/>

<http://www.aans.org/splash.html>

<http://www.americanheart.org/Stroke/index.html>

<http://www.metrokc.gov/health/ems/training.htm>

KING COUNTY EMERGENCY MEDICAL SERVICES <b>RECERTIFICATION</b>			<b>SKILLS CHECKLIST</b> CBT 442 STROKE	
EMT NAME & #	PLEASE PRINT YOUR NAME		DATE	
<b>Goal:</b> Early recognition, meaningful treatment, and safe rapid transport to the appropriate facility. <b>Objective:</b> Given a partner, relevant equipment and a patient with stroke symptoms, the EMT will demonstrate recognition and treatment as specifically identified in the KC BLS Patient Care Guidelines.				
<b>SCENE SIZE-UP</b>				
• Scene Safety	• Body Substance Isolation	• Additional Resources		
<b>INITIAL ASSESSMENT</b>				
• Level of Consciousness	• Airway	• Breathing	• Circulation and C-Spine	• Bleeding
<b>SUBJECTIVE (FOCUSED HISTORY)</b>				
<ul style="list-style-type: none"> <li>• Reassured and tried to calm patient</li> <li>• Found out patient's chief complaint (SAMPLE &amp; OPQRST)</li> <li>• Determined <i>time</i> of symptom onset</li> <li>• Record Medications</li> <li>• Record stroke risk factors</li> </ul>				
<b>OBJECTIVE (FOCUSED PHYSICAL EXAM)</b>				
<ul style="list-style-type: none"> <li>• Recorded and documented baseline vital signs</li> <li>• Evaluated patient using the Cincinnati Stroke Scale (Facial Droop, Arm Drift, and Speech)</li> <li>• Checked swallowing ability (if indicated)</li> <li>• Describe stroke affects not covered by Stroke Scale</li> <li>• Followed up with second set of vital signs</li> </ul>				
<b>ASSESSMENT (IMPRESSION)</b>				
<ul style="list-style-type: none"> <li>• State opinion on patient's condition</li> <li>• State ALS indicators and/or BLS indicators</li> </ul>				
<b>PLAN (TREATMENT)</b>				
<ul style="list-style-type: none"> <li>• Requested medics if indicated</li> <li>• Position patient upright</li> <li>• Opened and managed patient's airway</li> <li>• Delivered high flow oxygen, ventilatory assistance as necessary</li> <li>• Maintained normal body temperature</li> <li>• Protected paralyzed limbs</li> <li>• Monitored vital signs</li> </ul>				
<b>COMMUNICATION</b>				
<ul style="list-style-type: none"> <li>• Delivered <b>Short Radio Report</b> within 60 seconds</li> </ul>				
<b>DOCUMENTATION</b>				
<ul style="list-style-type: none"> <li>• Completed <b>SOAP</b> narrative portion of Medical Incident Report Form</li> </ul>				
<b>RECERTIFY</b>	YES?	NO?	<b>EVALUATOR</b>	PLEASE PRINT YOUR NAME AND SIGN

